Author’s response to reviews

Title: Virginity Testing: A systematic review

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Author’s response to reviews:

We would like to thank the reviewers and the editor for all of their valuable comments. We have addressed all of them in the new version of the paper and provide a detailed response to each of the comments below. (I can also provide the detailed response to the reviewers' comments and the manuscript with the revisions in track changes as this may facilitate the review.)

Reviewer #2:

Reviewer #2 Comments:

Response to Reviewer #2 Comments:

1. The search results are very old (Aug 2015). The last search was conducted almost 17 months back. The searches need to be revised.

1. Thank you for your comment. We agree with your suggestion, and have updated the search to January 14, 2017. We added one new study that reported on the impact on examinee of virginity testing in Iran [14]. Please see the supplementary material for the updated search strategy.

2. In the background section, authors have made a case that virginity testing is usually conducted on unmarried women to confirm her moral character and social value, however, majority of the studies identified were from the developed countries. It is, therefore, important to indicate in the results section, why those studies conducted virginity testing? So instead of just mentioning how many were confirmed being virgins with what methods, please indicate why the test was undertaken and under what circumstances?

2. Thank you for your comment. We agree with your suggestions. The results section now includes the reasons why each study performed hymen examination and/or virginity testing. In addition, we acknowledge that data from the United States being used to describe an examination primarily performed in developing countries is a limitation of the studies, which we have now addressed in the discussion section (lines 367-370
3. While reporting the findings from each study, it would be very useful if authors also mention the country where the study was conducted.

3. We agree with your comment. We have added the country where each study was conducted in the results section.

4. It was reported that the quality of the included studies were assessed, however, there was no indication of the quality of included studies in results or even in tables.

4. We agree with your comment and have made the suggested change. We added reference to the USPSTF grading criteria used to assess quality of evidence [33,34] as well as provided additional information on the specific USPSTF grading criteria utilized in the supplementary material, and added the quality of evidence to Tables 1a and 1b.

5. Page 5, paragraph 2, line 102: Replace "Cochrane" with "The Cochrane Library"

5. We agree with your comment and have made the suggested change.

6. Page 5, paragraph 2, line 103: Replace “Campbell Collaboration” with “the Campbell Collaboration”

6. We agree with your comment and have made the suggested change.

7. Page 6, line 124: Add "the" before the Cochrane Collaboration

7. We agree with your comment and have made the suggested change.

Additional Comments from Associate Editor:

Associate Editor Comments:

Response to Associate Editor Comments:

1) There are errors in the referencing, references are sometimes superscript (e.g. line 76) and sometimes in brackets after the sentence. In addition, the order of references appears to be incorrect e.g. line 89. Please ensure the referencing and all other formatting requirements for this journal are met.

1) We agree with your comments and corrected the references. All references have been thoroughly reviewed according to journal guidelines.

2) Line 75: for the term “he/she”, use of “he” before “she” is odd, could this be changed to “the individual”?

2) We agree with your comments and have made the suggested change (line 83).
3) Lines 88-92: there are contradictory statements here, e.g. the authors suggest reports of virginity testing are scarce but in the earlier sentence a significant number of references are quoted. Do you mean formal assessments of the frequency of virginity testing are scarce?

3) We agree with your comment. You are correct that we meant formal assessments of the frequency of virginity testing are scarce, and have updated the review with this wording in lines 98-101.

4) Line 94: Suggest change to “growing attention to eliminating sexual violence”, and include a reference to this statement e.g. the Sustainable Development Goals.

4) We agree and made the suggested change, with reference to the Sustainable Development Goals [16] in lines 103-104.

5) In the methods, please state whether the review protocol was registered e.g. with PROSPERO.

5) Unfortunately, we did not originally register our review protocol and were ineligible to do so retroactively. We now state that the review was not submitted to a registry in the methods, line 120.

6) In the methods, please state whether decisions about study inclusion as well as data extraction were undertaken by one or both authors.

6) We have made the suggested change. Decisions about study inclusion and data extraction are now noted to be performed by both authors in lines 146-151.

7) In Figure 1, include the main reasons for exclusion of the 46 studies that were reviewed in full.

7) We updated Figure 1 to include reasons for exclusion for studies reviewed in full.

8) Lines 115-16, regarding the eligibility criteria, should this be “all studies reporting on the medical relevance and/or impact of virginity testing”, and please clarify or give examples of the main outcomes that were of interest in determining the medical relevance/utility and impact.

8) We agree with your comment and have made the suggested changes. We now have described outcomes of interest and provided examples in lines 130-140.

9) Lines 119-120, please reference the data extraction and specific quality assessments used, in addition, please report on the quality assessments for individual studies in the results section (either text or tables).

9) We agree with your comments and have made the suggested change. We added additional information on the methods of data extraction (lines 155-157), and in line 166-170 added reference to the USPSTF grading system used to assess quality of evidence [33, 34], also
providing further information on grading criteria in the supplementary material. Lastly, we added the quality of evidence to Tables 1a and 1b.

10) Line 257, please reference the statement “as has been confirmed by previous studies” – and do you mean previous reviews or individual studies?

10) We agree with your comments. We had meant previous reviews – we clarified this, and referenced the two reviews (Lines 344-346).

11) Line 260, suggest remove the words “and are therefore inconclusive” to reduce repetition.

11) We agree with your comment. We removed this phrase to reduce repetition.

12) Lines 263-265, this sentence appears to undermine the earlier two sentences, is it necessary?

12) We agree with your comment and have removed this sentence.

13) Lines 274-77, this section on limitations needs to be expanded to discuss (a) the limitations of individual studies based on your quality assessment (e.g. how would the lack of control group bias the findings, potential for selection bias as most data are from children after abuse allegations, give the age range across the studies, comment on lack of data from outside the US etc.) and (b) the limitations of the review methods (e.g. potential for relevant studies to be missed).

13) We agree with your comment. We have expanded upon the limitations of the individual studies as well as the limitations of review methods (lines 364-383).

14) Lines 304-305, given the lack of systematic data on virginity testing, it is still valid to say that virginity testing is routinely performed by health care professionals in some settings?

14) We agree with your comment and have removed this sentence (line 415).

15) Tables 1a and 1b – please include details of the age of examinees and the person undertaking the examination.

15) We updated Tables 1a and 1b to include age of examinees and the profession of the examiner.

16) The Appendix is referred to as Annex 1 in the paper, please change this to supplementary material.

16) We agree with your comment and have changed it to supplementary material.